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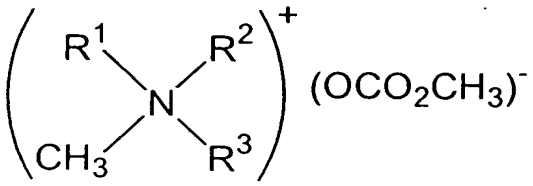
IN THE CLAIMS:

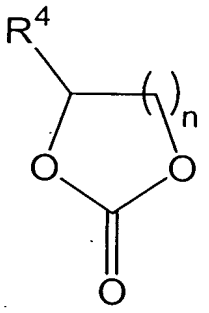
1. A method of preparing a quaternary ammonium methocarbonate having the formula



wherein R^1 and R^2 are independently C_1-C_{30} alkyl and R^3 is a C_8-C_{30} alkyl, the method comprising reacting

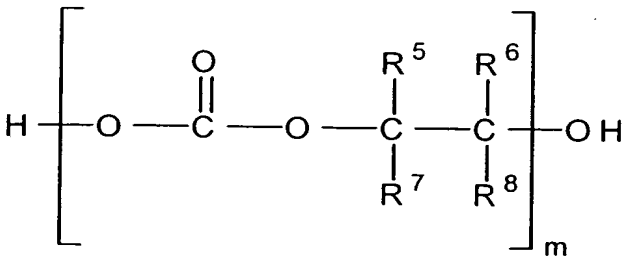
(a) an amine having the formula $NR^1R^2R^3$;

(b) (i) a cyclic carbonate having the formula



wherein R^4 is hydrogen or C_1-C_4 alkyl and n is an integer from 1 to 10,

(ii) an aliphatic polyester having the formula



wherein R^5, R^6, R^7, and R^8 are independently hydrogen or C_1-C_{10} alkyl and m is an integer from 1 to 1200, or

(iii) a mixture thereof; and

(c) methanol

to form the methocarbonate.

2. The method of claim 1, wherein R^1 and R^2 are independently C_1-C_{20} alkyl and R^3 is a C_8-C_{20} alkyl.

3. The method of claim 1, wherein R^1 and R^2 are independently C_1-C_{16} alkyl and R^3 is a C_8-C_{16} alkyl .

4. The method of claim 3, wherein R^1 is methyl.

5. The method of claim 1, wherein R^2 is C_1-C_{20} alkyl.

6. The method of claim 5, wherein R^2 is methyl.

7. The method of claim 5, wherein R^2 is C_8-C_{12} alkyl.

8. The method of claim 7, wherein R^2 is C_{10} alkyl.

9. The method of claim 1, wherein R^3 is C_8-C_{20} alkyl.

10. The method of claim 9, wherein R^3 is C_8-C_{12} alkyl.

11. The method of claim 10, wherein R^3 is C_{10} alkyl.

12. The method of claim 1, wherein R^1 is methyl and R^2 and R^3 are independently C_8-C_{12} alkyl.

13. The method of claim 12, wherein R^2 and R^3 are C_{10} alkyl.

14. The method of claim 1, wherein R^1 and R^2 are methyl and R^3 is C_8-C_{20} alkyl.

15. The method of claim 1, wherein the amine is selected from the group consisting of didecylmethylamine, dodecyldimethylamine, dioctylmethylamine, octadecyldimethylamine, dioctadecylmethylamine, trioctylamine, and any combination of any of the foregoing.

16. The method of claim 1, wherein R^4 is hydrogen or methyl.

17. The method of claim 16, wherein the cyclic carbonate is ethylene carbonate.

18. The method of claim 16, wherein the cyclic carbonate is propylene carbonate.

19. The method of claim 1, wherein R^5, R^6, R^7, and R^8 are independently hydrogen or C_1-C_4 alkyl.

20. The method of claim 19, wherein R^5, R^6, R^7, and R^8 are independently hydrogen or methyl.

21. The method of claim 1, wherein R^5 is methyl and R^6, R^7, and R^8 are hydrogen.

22. The method of claim 1, wherein m ranges from 1 to 100.

23. The method of claim 1, wherein the molar ratio of amine to component (b) ranges from about 1:1 to about 1:10.

24. The method of claim 23, wherein the molar ratio of amine to component (b) ranges from about 1:2 to about 1:3.

25. The method of claim 1, wherein the molar ratio of amine to methanol ranges from about 1:2 to about 1:20.

26. The method of claim 1, wherein the reaction step is performed at from about 120 to about 160° C.

27. The method of claim 26, wherein the reaction step is performed at from about 120 to about 150° C.

28. The method of claim 27, wherein the reaction step is performed at from about 120 to about 140° C.

29. The method of claim 1, further comprising the step of recovering the dimethyl carbonate.

30. The method of claim 1, wherein the reaction step comprises reacting

(a) the amine;

(b) (i) the cyclic carbonate,

(ii) the aliphatic polyester, or

(iii) a mixture thereof;

(c) methanol; and

(d) dimethylcarbonate.

31. The method of claim 30, wherein the molar ratio of amine to dimethylcarbonate ranges from about 2:1 to about 1:3.

32. A method of preparing didecyldimethyl ammonium methocarbonate comprising reacting

(a) didecylmethylamine;

(b) a cyclic carbonate selected from the group consisting of ethylene carbonate, propylene carbonate, and mixtures thereof; and

(c) methanol

to form didecyldimethyl ammonium methocarbonate.

33. The method of claim 32, wherein the reaction step comprises reacting

(a) didecylmethylamine;

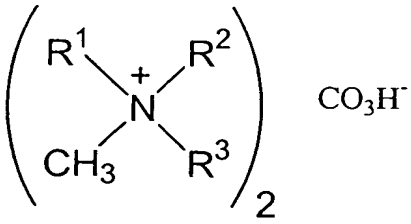
(b) a cyclic carbonate selected from the group consisting of ethylene carbonate, propylene carbonate, and mixtures thereof;

(c) methanol; and

(d) dimethylcarbonate.

34. The method of claim 32, wherein the cyclic carbonate is propylene carbonate.

35. A method of preparing a quaternary ammonium bicarbonate having the formula



wherein R^1, R^2, and R^3 are independently C_1-C_{30} alkyl, the method comprising

(a) preparing a quaternary ammonium methocarbonate by the method of claim 1; and

(b) converting the quaternary ammonium methocarbonate to the quaternary ammonium bicarbonate.

36. A method of preparing didecyldimethyl ammonium bicarbonate comprising

(a) reacting

(i) didecylmethylamine,

(ii) a cyclic carbonate selected from the group consisting of ethylene carbonate, propylene carbonate, and mixtures thereof, and

(iii) methanol

to form didecyldimethyl ammonium methocarbonate; and

(b) converting the didecyldimethyl ammonium methocarbonate to didecyldimethyl ammonium bicarbonate.

37. The method of claim 36, wherein step (a) comprises reacting

(i) didecylmethylamine,

(ii) a cyclic carbonate selected from the group consisting of ethylene carbonate, propylene carbonate, and mixtures thereof,

(iii) methanol, and

(iv) dimethylcarbonate

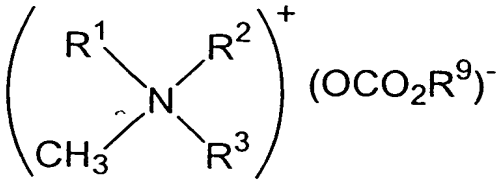
to form didecyldimethyl ammonium methocarbonate.

38. A method of preparing a mixture of quaternary ammonium bicarbonate and quaternary ammoinium carbonate wherein the quaternary ammonium cation has the formula $N^{+}(CH_3)R^1R^2R^3$ and R^1, R^2, and R^3 are independently C_1-C_{30} alkyl, the method comprising

(a) preparing a quaternary ammonium methocarbonate by the method of claim 1; and

(b) converting the quaternary ammonium methocarbonate to a mixture of quaternary ammonium bicarbonate and quaternary ammonium carbonate.

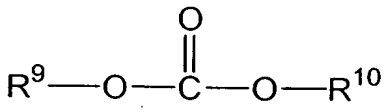
39. A method of preparing a quaternary ammonium alkylcarbonate having the formula



wherein R^1 and R^2 are independently C_1-C_{30} alkyl, R^3 is a C_8-C_{30} alkyl, and R^9 is a C_1-C_{10} alkyl, the method comprising reacting

(a) an amine having the formula $NR^1R^2R^3$;

(b) an ester having the formula



wherein R^{10} is a C_1-C_{10} alkyl; and

(c) methanol

to form the quaternary ammonium alkylcarbonate.

40. The method of claim 39, wherein R^1 is methyl and R^2 and R^3 are independently C_8-C_{12} alkyl.

41. The method of claim 39, wherein the amine is selected from the group consisting of didecylmethylamine, dodecyldimethylamine, dioctylmethylamine, octadecyldimethylamine, dioctadecylmethylamine, trioctylamine, and any combination of any of the foregoing.

42. The method of claim 39, wherein the molar ratio of amine to ester ranges from about 1:1 to about 1:10.

43. The method of claim 42, wherein the molar ratio of amine to ester ranges from about 1:2 to about 1:3.

44. The method of claim 39, wherein the molar ratio of amine to methanol ranges from about 1:2 to about 1:20.

45. The method of claim 39, wherein the reaction step is performed at from about 120 to about 160° C.

46. The method of claim 45, wherein the reaction step is performed at from about 120 to about 150° C.

47. The method of claim 46, wherein the reaction step is performed at from about 120 to about 140° C.

48. The method of claim 39, further comprising the step of recovering alkanol having the formula R^9OH.

49. The method of claim 39, wherein the reaction step comprises reacting

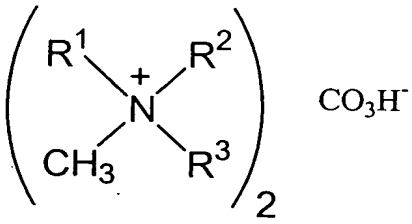
(a) the amine;

(b) the ester;

(c) methanol; and

(d) alkyl methyl carbonate having the formula $CH_3OC(O)OR^9$.

50. A method of preparing a quaternary ammonium bicarbonate having the formula

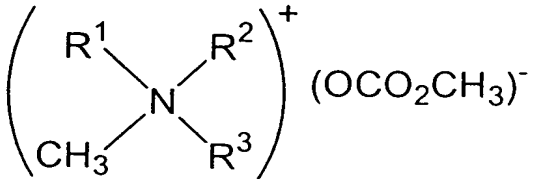


wherein R^1, R^2, and R^3 are independently C_1-C_{30} alkyl, the method comprising

(a) preparing a quaternary ammonium alkylcarbonate by the method of claim 39; and

(b) converting the quaternary ammonium alkylcarbonate to the quaternary ammonium bicarbonate.

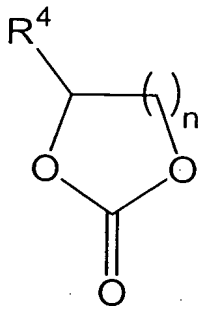
51. A method of preparing a quaternary ammonium methocarbonate having the formula



wherein R^1 and R^2 are independently C_1-C_{30} alkyl and R^3 is a C_8-C_{30} alkyl, the method comprising reacting

(a) an amine having the formula $NR^1R^2R^3$;

(b) (i) a cyclic carbonate having the formula



wherein R^4 is hydrogen or C_1-C_4 alkyl and n is an integer from 1 to 10,

(ii) a polycarbonate,

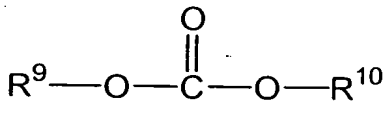
(iii) a carbonate ester, or

(iv) a mixture thereof; and

(c) methanol

to form the methocarbonate.

52. The method of claim 51, wherein the carbonate ester has the formula



wherein R^9 is $-CH_3$ and R^{10} is a C_1-C_{10} alkyl.